

REMARKS

Applicants respectfully request reconsideration of the instant application in view of the above amendments and the following remarks. Claims 3, 6, 8, 11 and 18 have been canceled without prejudice or disclaimer; claims 1, 2, 4, 5, 7, 9, 10 and 12-17 have been amended; and new claims 19 and 20 have been added by way of this Response. Claims 1, 2, 4, 5, 7, 9, 10, 12-17 and 19-20 are currently pending. Applicants have also supplied an amended drawing and amended the specification to correct several informalities by way of the instant Amendment/Response. Applicants submit that support for the amendments may be found throughout the originally filed specification and claims and that no new matter has been added by way of this Amendment/Response.

Applicants further submit that the claims in their original form are patentable and reserve the right to argue patentability of the original claims or variations thereof at a later time.

Drawings

The Examiner has objected to certain alleged informalities in the drawings. Applicants have submitted a replacement drawing as Attachment A so that the drawings are formally rendered. Applicants respectfully submit that no new matter has been added by the instant amendment to the drawings.

Specification

The Examiner has objected to certain alleged informalities in the specification. Applicants have submitted amendments to the specification to correct informalities and address the Examiner's concerns. Specifically, Applicants have added a Brief Description of the Drawings Section, incorporating original language from the as-filed specification. Applicants

have also amended p. 2, ¶ 4; p. 3, ¶ 3; p. 7, ¶ 5; and p. 9, ¶ 1 to clarify the relationship between doped metallic ions and the dielectric storage material. Applicants have also amended p. 6, ¶ 1 to clarify aspects described therein. Applicants have amended the Abstract to comply with the 150 word limit.

Applicants respectfully submit that no new matter has been added by the instant amendments to the specification and submit that the Examiner's objections to the Figures and Specification have been overcome.

Claim Objections

The Examiner has objected to claims 7, 9-11 and 15-17 as allegedly being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicants have amended claims 7, 9-11 and 15-17 to correct informalities and provide clarification.

Specifically, the Examiner has objected to claims 7 and 9-11 for referring to "the material layer" though there is no mention of "the material layer" in independent claim 1. Applicants have amended claims 1, 7 and 9-10 to recite, *inter alia*, "the polymer layer," and claim 11 has been canceled. The Examiner has further objected to claims 15-17 as referring to the process of claim 1, while alleging that "claim 1 is clearly an article." Applicants have amended claims 15-17 to depend from claim 13 (or claims depending therefrom), which recites, "A process for storage of data..."

Accordingly, Applicants respectfully submit that the Examiner's objections to the Claims have been overcome.

Claim Rejection Under 35 USC § 112, ¶ 2

The Examiner has rejected claims 1, 2, 4, 5, 7, 9, 10, 12-17 under 35 U.S.C. § 112, ¶ 2 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, the Examiner has referred to "the usage of 'and/or' in claims 2, 13, 14, and 16, the usage of 'metallic particles/metallic ions' in claim 12, the word 'reflexion' in claim 14, and all of the broad/narrow limitations mentioned below." Applicants have amended claims 2, 5, 13, 14 and 16 to remedy the informalities in claim language identified by the Examiner. Other uses of a solidus have been addressed, as reflected in the listing of amended claims.

Applicants have also amended the term "reflexion" in claim 14 to recite "reflection".

Accordingly, Applicants respectfully request reconsideration and withdrawal of this basis of the Examiner's rejection.

The Examiner has further alleged that the use of "may be arranged" and "may be transferred" in independent claim 1 is indefinite, "as it is unclear whether Applicants do or do not need a donor layer for their article." Though Applicants respectfully traverse the Examiner's characterization of the claim, Applicants have amended independent claim 1 to clarify aspects of the claim and expedite further prosecution. Applicants have amended claim 1 to recite, "which is arranged," and, "ions are transferred." Accordingly, Applicants respectfully request reconsideration and withdrawal of this basis of the Examiner's rejection.

The Examiner has further alleged that, with respect to claim 13, "it appears that this is not a process for recording or reproducing data," but rather, "production of a storage medium." (February 20, 2008 Office Action, p. 5, ¶ 2). Applicants respectfully traverse the Examiner's rejection and submit that claim 13 indeed describes, "A process for storage of data

with a storage medium," as recited in the amended claim. "[D]oping of the storage glass material," allows for encoding of information when, by way of example only, such doping is performed on a localized and/or non-uniform basis. Amended claim 13 recites, "irradiation of the storage glass material by focused electromagnetic or particle irradiation," which engenders "storage of data within a storage medium". Additional aspects of an embodiment are discussed in new dependent claim 20, which recites, "[t]he Process according to claim 13, wherein analog information is stored by varying an intensity of the electromagnetic or particle irradiation." Accordingly, Applicants respectfully request reconsideration and withdrawal of this basis of the Examiner's rejection. If the Examiner disagrees and maintains his rejection, Applicants respectfully request that the Examiner provide further discussion clarifying how the process described in claim 13 does not facilitate "storage of data within a storage medium" as claimed.

The Examiner has further alleged that, "[t]he terms 'local metallic ion doping', 'locally with metallic ions', and 'near the surface' in claims 2, 14, and 4, respectively, are relative terms which render the claims indefinite." (February 20, 2008 Office Action, p. 5, ¶ 3). Though Applicants respectfully disagree with the Examiner's argument, Applicants have amended claims 2, 14, and 4 to provide clarification and expedite further prosecution. Amended claims 2 and 14 recite, "localized metallic ion doping," and, "localized formation of metallic particles," respectively. Applicants submit that the term "localized" is clear, definite and not a relative term. Applicants have also amended claim 4 to recite, "near a flat surface of one of the at least two interconnected disks comprising the storage glass material." Applicants submit that the amended claims are clear, definite and unambiguous. Accordingly, Applicants respectfully request withdrawal of this basis of the Examiner's rejection.

The Examiner has further objected to the use of the term "notably" in claims 1, 2, 13 and 18. Applicants have amended these claims to remove the term "notably".

The Examiner has further rejected claims 7 and 9-11 as having insufficient antecedent basis for the terms "the material layer" and "the functional structure". Applicants have amended claims 7 and 9-10 (claim 11 has been canceled) to recite, "the polymer layer," which has sufficient antecedent basis provided for in independent claim 1. Applicants have also amended claim 10 to depend from claim 7 and recite, "the optically functional structure," which has antecedent basis in claim 7. Accordingly, Applicants respectfully request withdrawal of these bases of the Examiner's § 112 rejections.

Claim Rejection Under 35 USC § 102(b) and 103(a)

The Examiner has rejected claims 1, 2, 4, 5 and 12-17 under 35 U.S.C. § 102(b) as being anticipated by Wu (US5078771; hereinafter, "Wu") or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Wu. Applicants respectfully traverse the Examiner's rejection.

The February 20, 2008 Office Action recites:

The Examiner takes the position that the heating of the glass layer and the silver ion layer to create the IIES layer in Wu is equivalent to applicants' ion-exchanged layer formed by irradiation

Alternatively, it would have been obvious to one having ordinary skill in the art of the manufacture of optical recording media to use a laser or any form of irradiation to selectively control the heating process that corresponds to the generation of the IIES (recording) layer. This would generate a boundary layer that would have the specific properties desired for applicants' intended use.
(February 20, 2008 Office Action, p. 9, ¶ 1-2)

Applicants respectfully disagree with the Examiner's characterization of Wu with respect to the pending claims. Amended independent claim 1 recites, "whereby by irradiation with a focused laser beam, metallic ions are transferred from the donor medium into the storage glass material." This stands in contrast to Wu's system, which

describes uniform doping and/or heating. (see, e.g., Wu, col. 37, lines 3-9). Applicants submit that the "storage of information" concomitant with "irradiation by a focused laser beam" is patentably distinct from the uniformly doped and heated medium of Wu, the latter having no information content. Furthermore, claim 20 illustrates another application of information storage: " wherein analog information is stored by varying an intensity of the electromagnetic or particle irradiation". If the Examiner disagrees and maintains this basis for rejection, Applicants respectfully request that the Examiner clarify how the uniformly doped medium of Wu is storing information similar to the information storage recited in the various elements of the pending claims.

Applicants further submit that Wu not only fails to disclose "irradiation with a focused laser beam," but actually teaches away from such an element. Applicants direct the Examiner's attention to col. 23, lines 8-23 of Wu, in which the storage medium of Wu is described as being insensitive to "radiations in the wavelength ranges from ultraviolet throughout visible light and longer wavelengths." Wu goes on to describe this insensitivity as being, "of paramount importance to their [storage media's] usefulness as phototools and/or as optically retrievable, permanently recordable media." (Wu col. 23, lines 11-13). Applicants therefore respectfully submit that, for this reason as well, the Examiner's characterization of the heating in Wu as analogous with Applicants' claimed "irradiation" is incorrect. Furthermore, Applicants traverse the Examiner's assertion that, "it would have been obvious to one having ordinary skill in the art ... to use a laser or any form of irradiation to selectively control the heating process that corresponds to the generation of the IIES (recording) layer," (See, Office Action, p. 9, ¶ 2) as Wu's description teaches against the use of electromagnetic radiation

Applicants further submit that Wu's system is incompatible with laser marking, and instead requires an electron beam. More specifically, the glass described by Wu necessarily contains AgCl and/or operates based on Ag ion exchange (see, e.g., Wu's abstract), based on the specific process of manufacture. As described in col. 52, lines 4-66, the AgCl acts as traps for electrons of the writing electron beam. Accordingly, the glass of Wu only works in coordination with an electron beam and not with lasers. This is reflected even in the very name of the HEBS (High Energy Beams Sensitive) glass. As lasers are manifestly unsuitable for marking the glass described by Wu, Applicants submit that Wu fails to anticipate the elements of claim 1 which include, *inter alia*, "irradiation with a focused laser beam".

Applicants further submit that the Examiner has made his obviousness argument without either identifying a reference to remedy the deficiencies identified in Wu or taking official notice for the missing element. Applicants respectfully request that, should the Examiner maintain this rejection, that the Examiner either provide a reference to remedy the deficiencies identified in Wu or take official notice with respect to that deficiency.

Applicants note that claim 13, formerly dependent from independent claim 1, has been rewritten in independent form. Although of different scope than claim 1, Applicants submit that claim 13 is patentable over Wu for at least a similar reason as discussed above with regard to Wu's deficiencies and independent claim 1. For Example, claim 13 recites, *inter alia*: "irradiation of the storage glass material by focused electromagnetic or particle irradiation".

Applicants respectfully submit that at least this claim element from independent claim 13 is not anticipated or rendered obvious by Wu's system, which teaches away from the use of electromagnetic irradiation, as discussed above.

The Examiner has also rejected claims 7, 9 and 10 under 35 U.S.C. § 103(a) as being unpatentable over Wu in view of Nomura et al., "Super-Resolution Read-Only Memory Disk with Metal Nanoparticles or Small Aperture," Jap. J. Appl. Phys. Pt. 1, vol. 41(3B) pp. 1876-1879 (March 2002) (hereinafter, "Nomura"). Applicants respectfully traverse this rejection and submit that Nomura fails to remedy the deficiencies identified above with respect to Wu. For example, the insensitivity of Wu's glass to electromagnetic radiation teaches away from a combination with Nomura, the latter employing laser irradiation.

Accordingly, Applicants respectfully request withdrawal of these bases of the Examiner's rejection.

CONCLUSION

Consequently, the reference(s) cited by the office action do not result in the claimed invention, there was/is no motivation for such a combination of references (i.e., cited references do not teach, read on, suggest, or result in the claimed invention(s)), and the claimed inventions are not admitted to be prior art. Thus, the Applicant respectfully submits that the supporting remarks and claimed inventions, claims 1, 2, 4, 5, 7, 9, 10, 12-17 and 19-20, all: overcome all rejections and/or objections as noted in the office action, are patentable over and discriminated from the cited reference(s), and are in a condition for allowance. Furthermore, Applicant believes that the above remarks, which distinguish the claims over the cited reference(s), pertained only to noted claim element portions. These remarks are believed to be sufficient to overcome the prior art. While many other claim elements were not discussed, Applicant asserts that all such remaining and not discussed claim elements, all, also are distinguished over the prior art and reserves the opportunity to more particularly remark and

distinguish such remaining claim elements at a later time should it become necessary. Further, any remarks that were made in response to an Examiner objection and/or rejection as to any one claim element, and which may have been re-asserted as applying to another Examiner objection and/or rejection as to any other claim element(s), any such re-assertion of remarks is not meant to imply that there is commonality about the structure, functionality, means, operation, and/or scope of any of the claim elements, and no such commonality is admitted as a consequence of any such re-assertion of remarks. As such, Applicant does not concede that any claim elements have been anticipated and/or rendered obvious by any of the cited reference(s). Accordingly, Applicant respectfully requests allowance, and the reconsideration and withdrawal of the rejection(s) and/or objection(s).

If a telephone conference would facilitate prosecution of this application in any way, the Examiner is invited to contact the undersigned at the number provided.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees which may be required for consideration of this Amendment to Deposit Account No. 03-1240, Order No. 17233-007.

In the event that an extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. 03-1240, Order No. 17233-007.

Respectfully submitted,
CHADBOURNE & PARKE, L.L.P.

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